

WHAT IS CLAIMED IS:

1. A method of writing an image on a liquid crystal display of the type having a layer of cholesteric liquid crystal material disposed between a pair of unpatterned conductors and a light absorbing layer for forming an image wise thermal pattern in response to an image wise pattern of light, comprising:

- a) applying a first voltage to the conductors;
- b) applying a second voltage different from the first voltage to the conductors after applying the first voltage, wherein the first and second voltages are non-zero; and
- c) exposing the liquid crystal display to the image wise pattern of light.

2. The method claimed in claim 1, wherein the step of exposing occurs prior to the application of the first non-zero voltage.

3. The method claimed in claim 1, wherein the step of exposing occurs during the application of the first non-zero voltage.

4. The method claimed in claim 1, wherein the step of exposing occurs during the application of the second non-zero voltage.

5. The method claimed in claim 1, wherein the second voltage is higher than the first voltage.

6. The method claimed in claim 1, wherein the first voltage is effective to drive the cholesteric liquid crystal material to a focal conic state.

7. The method claimed in claim 1, further comprising the step of applying a third voltage between the first and second voltages.

8. The method claimed in claim 7, wherein the step of exposing occurs during the application of the third voltage, and wherein the third voltage is less than the first and second voltages.

9. The method claimed in claim 8, wherein the second voltage is greater than the first and third voltages.

10. The method claimed in claim 7, wherein the third voltage is zero.

11. The method claimed in claim 8, wherein the step of exposing occurs more than 1 second after the first voltage.

12. The method claimed in claim 7, further comprising the step of applying a fourth voltage between the first and the third voltages.

13. The method claimed in claim 11, wherein the step of exposing occurs during the application of the third voltage, and wherein the second voltage is greater than the third and fourth voltages.

14. The method claimed in claim 12, further comprising the step of applying a fifth voltage between the first and fourth voltages.

15. The method claimed in claim 14, wherein the step of exposing occurs during the application of the third voltage, and wherein the second voltage is greater than the third, fourth and fifth voltage.

16. The method claimed in claim 5, wherein the duration of the second voltage is less than 2 milliseconds.

17. The method claimed in claim 1, wherein the step of exposing the display to an image wise pattern of light is performed with a mask and a flash lamp.

18. The method claimed in claim 17, wherein the mask is electronically programmable to define the image wise pattern of light.

19. The method claimed in claim 18, wherein the mask is a liquid crystal device.

20. The method claimed in claim 1, wherein the cholesteric liquid crystal layer is a polymer dispersed layer.

21. The method claimed in claim 20, wherein the polymer is gelatin.

22. The method claimed in claim 1, wherein the first and second voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles.

23. The method claimed in claim 7, wherein the first, second and third voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles.

24. The method claimed in claim 12, wherein the first, second, third and fourth voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles.

25. The method claimed in claim 14, wherein the first, second, third, fourth and fifth voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles.

26. Apparatus for writing an image on a liquid crystal display of the type having a layer of cholesteric liquid crystal material disposed between a pair of unpatterned conductors and a light absorbing layer for forming an image wise thermal pattern in response to an image wise pattern of light, comprising:

- a) means for applying a first voltage to the conductors;
- b) means for applying a second voltage different from the first voltage to the conductors after applying the first voltage, wherein the first and second voltages are non-zero; and
- c) means for exposing the liquid crystal display to the image wise pattern of light.

27. The apparatus claimed in claim 26, wherein the means for exposing the liquid crystal display exposes the liquid crystal display to the image wise pattern of light prior to the application of the first non-zero voltage.

28. The apparatus claimed in claim 26, wherein the second voltage is higher than the first voltage.

29. The apparatus claimed in claim 26, wherein the first voltage is effective to drive the cholesteric liquid crystal material to a focal conic state.

30. The apparatus claimed in claim 26, wherein the means for exposing the display to an image wise pattern of light includes a mask and a flash lamp.

31. The apparatus claimed in claim 30, wherein the mask is electronically programmable to define the image wise pattern of light.

32. The apparatus claimed in claim 31, wherein the mask is a liquid crystal device.

33. The apparatus claimed in claim 26, wherein the cholesteric liquid crystal layer is a polymer dispersed layer.

34. The apparatus claimed in claim 33, wherein the polymer is gelatin.

35. The apparatus claimed in claim 26, wherein the first and second voltages are generated by bipolar waveforms that have the same amplitudes and different duty cycles.